

DEPARTMENT OF NAVY INTERIM REPORT OF HUMAN RADIATION EXPERIMENTS

IDENTIFICATION OF ORGANIZATIONS THAT MIGHT HAVE CONDUCTED OR SPONSORED HUMAN RADIATION EXPERIMENTS

Introduction. This interim report is in response to the Assistant to the Secretary of Defense (Atomic Energy) request for a DoD-wide review of Human Radiation Experiments (attachment I). This portion of the Navy's review identifies organizations that might have conducted or sponsored human radiation experiments. Also identified are the archives and record centers where records concerning such experiments might exist and a description of steps taken to search those records.

1. On January 31, 1994 the Assistant to the Secretary of Defense (Atomic Energy) tasked the Secretaries of the Military Departments to provide a two-part report identifying, based on missions and activities, any activity that conducted or sponsored human radiation experiments. To ensure a comprehensive search, the Secretary of the Navy sent an All Navy message directing organizations to review their activities for any involvement. The information obtained in this initial search is presented here in two parts:

PART ONE: Identifies archives or record centers where records concerning experiments might exist and a description of the steps taken to search those records.

PART TWO: Identifies each possible human radiation experiment and the location of records regarding each experiment.

This interim report provides an indication of the magnitude of the search involved and the amount of data available. Continuing efforts in data retrieval and visual inspections of available records will provide a complete and unbiased accounting of radiation experimentation.

The Navy organizations listed below have been positively identified as having been involved, to some degree, with human radiation experiments:

<u>NAVY ORGANIZATION</u>	<u>LOCATION</u>	<u>POINT OF CONTACT</u>
Bureau of Medicine & Surgery (BUMED)	23 & E Street Washington, DC 20037	CAPT David George 301 295-5410
Office of the Chief of Naval Research (ONR)	Ballston Center Tower#1 Arlington, VA	LCDR Eric Womble 703 696-4259

2. The results of this review are provided below by organization. The Bureau of Naval Medicine will be addressed first followed by the Office of Naval Research. Specific experiments from BUMED and ONR within the scope of this search will be listed in Part II of this report.

PART I: IDENTIFICATION OF ORGANIZATIONS THAT MIGHT HAVE CONDUCTED OR SPONSORED HUMAN RADIATION EXPERIMENTS

Bureau of Medicine and Surgery (BUMED).

1. BUMED has been identified as one of two naval organizations that have sponsored human radiation experiments.

2. Key researchers, active duty and retired, were questioned concerning research activities at various commands and documentation practices used during the time frame of interest, 1944 to the present.

3. Reports at the Defense Technical Information Center (DTIC) were searched to identify applicable reports. Copies of research reports are usually sent to DTIC upon task completion.

DTIC performed a search by key words of their computerized Title Index. The key word search identified over 3,200 titles. The titles correspond to reports of Army, Navy, Air Force and translations of foreign and other US agency work. The computerized Title Index contains all reports (700,000) provided to DTIC since 1972. (Some of the reports reflect research performed prior to 1972, e.g. work performed in the 1940s and 50s, but not submitted to DTIC until after 1972, e.g., upon the closing of a library, etc.).

A manual review of the titles reduced the reports of interest to 513. Reviewing abstracts of the 513 reduced the number of reports to 155. Review of 148 of the 155 reports identified six related to Navy work involving exposure of humans to radioisotopes in the course of the experiment. Reviews of the other seven are pending.

Reports submitted to DTIC prior to 1972 are maintained on index cards. A search by key word yielded approximately 390 titles. Review of the abstracts identified approximately 96 of interest.

4. Record storage procedures were reviewed to understand the archiving system. Activities forward records to Regional Records Centers where they are held for designated retention periods. Administrative records are retained for 6 years. Clinical charts and personnel medical records are retained for 75 years. After approximately 25 years, those records that remain are transferred to the National Archives where a decision is made

to purge (destroy) or retain the files. Only 1-2 percent of all administrative records actually go into the archives and these are mostly legal cases or titles, etc.

Personnel, medical, and clinical records go to the National Records Center in St. Louis. Records are filed by Service Number or Serial Number. St. Louis is counting the cubic feet of records from each medical facility. Initial estimates indicate approximately 28 million Navy medical records are stored at St. Louis covering the time frame from 1944 to the present.

All Regional Archives and Federal Records Centers have been contacted and are searching for records. All have replied except St. Louis.

5. Each BUMED activity was tasked to search their records and report any experiments or clinical trials that involved exposure to human test subjects.

6. The Naval Environmental Health Center's Manager for Medical Department Radioactive Material Use Permits was asked to review Licenses and Permits to identify activities authorized to use radioactivity on human test subjects, and provide an estimate of time periods during which various commands had active programs. In addition, copies of any curriculum vitae containing publications reflecting studies on humans were requested.

7. Curriculum vitae (CV) were requested from researchers to help identify publications reflective of work performed at various activities.

8. A list of possible researchers was compiled to allow a search for publications containing the research efforts at various activities. Activities identified or suspected of having performed experiments or clinical studies involving exposure to humans are listed below. The summaries below include a description of efforts to identify experiments conducted, records found, and list of possible experiments:

A. Naval Medical Research Institute (NMRI), Bethesda, MD: NMRI established the Radiation Technology Division which did basic animal radiobiology work and support work for atomic weapons testing. Division was active from early 1940s until about 1960.

Efforts to locate human radiation experiment records:

(1) Queried knowledgeable individuals as to the type work performed at NMRI.

(2) Searched through technical documents available in NMRI library.

- (3) Searched computerized and index card records.
- (4) Queried Federal Records Centers for NMRI records.
- (5) Queried Federal Archives for NMRI records.
- (6) Searching Medicus Indicus for publications by NMRI investigators.
- (7) Searching License File for curriculum vitae.

Individuals consulted:

Dr. Vic Bond, (516) 282-3332, and Dr. Eugene Cronkite, (516) 282-7538, Brookhaven National Laboratory.
 Captain Bob Gaugler, MSC, USN, NMRI
 Captain Doug Erhardt, MSC, USN, Executive Officer, NMRI
 Bob Plowman, Joseph Sheehan, Dan Bennett, National Archives and Federal Records Center, Philadelphia (215) 597-5694/9753

Records found:

- (1) Copies of all Technical reports are located in NMRI Library.
- (2) Location of archive records if any exists is unknown.
- (3) Radioisotope License File is on record with the Navy Environmental Health Center.
- (4) One cu ft of logs dated 1944-1956 were destroyed Aug 1992 by Federal Records Center, St. Louis.

List of Experiments or Possible Experiments:

- (1) Suspect some physiology and medical human tests occurred in collaboration with the hospital (1943-1960). Dr. Cronkite stated doctors stationed at NMRI 1946-1954 were not allowed to see patients in the hospital.
- (2) Study "Biological Studies of Antimony Compounds Containing Radioactive Isotopes," and "The Blood-Tissue Exchange and Excretion of Antimony in Humans Given a Single Dose of Tartar Emetic." April 1944

Tracer study with radioactive antimony on two patients with lephantitis to study the location and clearance time of antimony which was used as the standard treatment of the parasites which caused the disease.

(3) Study "Decreased Free Fraction of Thyroid Hormones After Prolonged Antarctic Residence". 1983-1984

Study of the effect of cold weather on thyroid function performed under the auspices of NMRI on volunteers wintering over on Antarctica.

B. Naval Hospital Saint Albans: Naval Hospital St. Albans was disestablished in 1973. St. Albans was the major Navy cancer treatment hospital on the East Coast in the late 1940s to early 1960s. In 1952 a medical physicist was assigned to help physicians develop therapeutic use of radioisotopes.

Efforts to locate human radiation experiment records:

- (1) Interviewed individuals previously stationed or knowledgeable of activities at St. Albans to determine type of work.
- (2) Queried Federal Records Centers for presence of records.
- (3) Queried National Archives for presence of records.
- (4) Searched DTIC index and card files by key words for papers or reports prepared by individuals at St. Albans.
- (5) Searching Medicus Indicus for papers published by individuals stationed at St. Albans.
- (6) Searched radioisotope license file.

Individuals consulted:

Commander Tom Mitchell, MSC, USN (Ret)
Captain Pishnotti, MC, USN (Ret)
Captain Horace Chester Dudley, MSC, USN (Ret)
Robert Morris, National Archives Boston (617) 647-8100
Martin Kabakoff, Federal Records Center, Boston (617) 647-8110
Lee Remero, Federal Records Center, New York (201) 823-7161
Karen Lucas, Federal Records Center, New York (201) 823-5487
Gregory J. Plunges, National Archives, New York (212) 337-1300
William Seibert, National Personnel Records Center, St. Louis, (314) 538-4216
Joseph Sheehan, National archives, Philadelphia
Grill Plunges, National Archives, New York

Human radiation experiment records found:

- (1) No experiment records found.

(2) Nation Archives, New York, holds 1.5 cubic feet of St. Albans records, 10 page command history, no experimental results or clinical trial information.

(3) Patients charts and military health records located in Federal Records Center, St. Louis, 3,249 cu ft for years 1943-73.

(4) Open scientific literature may hold published papers, however, none have yet been found.

List of Possible Experiments:

(1) Clinical applications with human test subjects at major navy cancer treatment hospital on east coast. Medical physicist and several physicians working to develop therapeutic procedures using Sr-90, Gallium-74 and possibly P-32. (1952-1973)

C. Naval Medical Research Unit No.3, Cairo, Egypt:

Efforts to locate human radiation experiment records:

(1) Defense Technical Information Center (DTIC) computer search of key words. Conducted a manual review of titles and abstracts via a key word search to identify possible human radiation experiment records.

(2) Queried Federal Records Centers.

(3) Queried Federal Archives.

(4) Medical Records of military located at Federal Records Center St. Louis.

Individuals consulted:

Captain Ed Flynn, MC, USN, Commanding Officer, Research and Development Command

Mr. Rich Boyland, National Archives, Suitland, MD (301) 763-1083

Ms Celicia Chance Federal Records Center, Suitland, MD (301) 763-7430

Ms Millie Sturate, Federal Records Center, Suitland, MD (202) 433-4217

Mr. Jim Smith, Federal Records Center, Fort Worth TX (Port of entry for foreign generated US records)

William Seibert, National Personnel Records Center, St. Louis, (314) 538-4216

Records found:

(1) Reports are at NMRU 3 in Cairo.

- (2) Two reports in DTIC files.
- (3) Radioisotope License file, Navy Environmental Health Center.

List of Experiments or Possible Experiments:

- (1) Study "Calcification of Schistosoma Haematoeium Eggs: Relation of Radiologically Demonstrable Calcification to Eggs in Tissues and Passage of Eggs in Urine." March 1978

Study compared radiographic evidence of parasite infestation with the number of eggs sloughed in the urine.

- (2) Study "Urinary Schistosomiasis in Egypt: Further Radiological Correlation's." February 1973

D. National Naval Medical Center, Bethesda, MD. National Naval Medical Center, Bethesda installed a small reactor in approximately 1952 to manufacture radio pharmaceuticals. Clinical research has continued to the present.

Efforts to locate human radiation experiment records:

- (1) Defense Technical Information Center (DTIC) computer search of key words. Manual reviews of titles and abstracts was conducted of the key word search to identify records.
- (2) Contacted National Archives.
- (3) Contacted Federal Record Centers.
- (4) Searched spaces.
- (5) Searching journals for published articles.
- (6) Reviewing curriculum vitae of previous staff members to identify studies they may have published.

Individuals consulted:

CDR Bill Beckner, MSC, USN (Ret) (301)657-2652
CDR Rick LaFontaine, MSC, USN (301) 295-5002
CDR Jim Bridges, MSC, USN
CAPT Karl Mendenhall, MSC, USN (202) 653-1182
Bob Plowman, National Archives, Philadelphia (215) 597-3000
Joseph Sheehan, National Archives, Philadelphia
(215) 597-5694/9753
Dan Bennett, Federal Records Center, Philadelphia (215) 597-5694/9753

Rich Boyland, National Archives, Suitland, MD (301) 763-1083
Velicia Chance Federal Records Center, Suitland, MD (301)
763-7430
Millie Sturate, Federal Records Center, Suitland, MD (202)
433-4217
Jim Jensen, Records Manager for Navy, 202-433-2434
William Seibert, National Personnel Records Center, St.
Louis, (314) 538-4216

Records found:

- (1) Whole Body Counter, 50 cu ft: Patient charts, whole body counting data, patient logs and occupational radiation safety whole body scans.
- (2) Radiation therapy: approximately 11,000 radiation therapy patient treatments at the institute, some of which, were on protocols.
- (3) Federal records Center, Suitland MD., 756 cu ft of records, 1952-1979. Records may be BUMED records versus National Naval Medical Center.
- (4) Clinical Investigation Division: They believe they have all records since division was established approximately 1974.
- (5) Radioisotope License file, Navy Environmental Health Center.
- (6) Clinical Investigation Division, Health science Education and Training Command.
- (7) Federal Personnel Records Center, St. Louis, 6,046 cu ft, 1952-73; 5,710 cu ft 1974-1991.

List of Experiments or Possible Experiments:

- (1) Nuclear medicine tracer studies. Diagnosis of multiple small pulmonary emboli with Tc-99m microspheres. First bone scan paper published in the United States, 1958-1960 time frame.

- (2) Metabolism studies using whole body counting.

- (3) Endocrinology studies:

Whole body retention of orally administered Calcium-47.

Total body potassium as a reference standard for normality of red blood cell mass.

(4) Radiation therapy protocol patients in cooperation with radiation therapy groups sponsored by the National Cancer Institute.

(5) Clinical Investigation studies.

(6) Study: "IgE Antipolymyxin B Antibody Formation in a T Cell-Depleted Bone Marrow Transplant Patient." May 1974

Study of antibody formation in a bone marrow transplant patient. Bone marrow had been sterilized by radiation.

E. Naval Hospital Chelsea/Navy Blood Lab. Naval Hospital Chelsea/Naval Blood Lab was disestablished approximately 1968. Their work is now performed under contract. Contractor: Cryopharm Corporation and St. Elizabeth's Hospital, Boston.

Efforts to locate human radiation experiment records:

(1) Defense Technical Information Center (DTIC) computer search of key words. Manual reviews of titles and abstracts was conducted of the key word search to identify possible human radiation experiment records.

(2) Contacted National Archives.

(3) Contacted Federal Records Centers.

Individuals consulted:

Jim Owens, National Archives, Boston. (617) 647-8100
Martin Kabakoff, Federal Records Center, Boston (617) 647-8110
Robert Morris, National Archives, Boston (617) 647-8100
Lee Remero, Federal Records Center, New York (201) 823-7161
Karen Lucus, Federal Records Center, New York (201) 823-5487
Gregory J. Plunges, National Archives, New York (212) 337-1300
William Seibert, National Personnel Records Center, St. Louis, (314) 538-4216
Joseph Sheehan, National Archives, Philadelphia
Graff Plunges, National Archives, New York
CAPT Jim Alexander, MC, USN, Health Sciences and Education Command, (301) 295-5769

Records found:

(1) Federal Records Center, Boston 4 cu ft, Chelsea NH, 1968-74, surgical cases and disease categories.

(2) Blood lab estimates large quantity of records, estimated copying cost, \$100,000.

(3) Federal Personnel Records Center, St. Louis, NH Chelsea records 119 cu ft labeled "special study and clinical charts," 1953-1970.

List of Possible Experiments:

- (1) Red blood cell survival studies of transfused blood to test cell survival using Chromium-51. (November 1990)
- (2) Multiple other blood transfusion and blood storage studies.

F. Naval Hospital, San Diego, Ca:

Efforts to locate human radiation experiment records:

- (1) Defense Technical Information Center (DTIC) computer search of key words. Conducted a manual reviews of titles and abstracts via a key word search to identify possible human radiation experiment records.
- (2) Queried National Archives for records.
- (3) Queried Federal Records Centers for records.
- (4) Requested curriculum vitae from prior staff to assist in a literature review.

Individuals consulted:

Diane Nixon, National Archives, Laguna (714) 643-4241
Sharon Roadway, Federal Records Center, Laguna (714) 643-4241
Waverly Lowell, National Archives, San Bruno (415) 876-9009
Richard Boyden, Federal Records Center, San Bruno (415) 876-9009
William Seibert, National Personnel Records Center, St. Louis, (314) 538-4216
LCDR Dean Taylor, MSC, USN, (619) 532-8784

Records found:

- (1) Federal Records Center, St. Louis. 2,668 cu ft 1966-73; 11,379 cu ft 1974-90.
- (2) Clinical investigation records are at Naval Hospital San Diego.
- (3) Radioisotope License File on record with the Navy Environmental Health Center.

List of Experiments or Possible Experiments:

(1) A curriculum vitae review indicates the following studies were published or presented:

"Clinical Evaluation of Ga-67 Scanning in the Diagnosis of Anaplastic Carcinoma and Malignant Lymphoma in the Thyroid Gland." 1981

"Focal Increased Lung Perfusion and Intrapulmonary Venoarterial Shunting in Broncho Alveolar Cell Carcinoma." 1980

"Echographic and Radionuclide Detection of Hepatoma." 1980

"Bone Scanning in the Evaluation of Exercise Related Stress Injuries." 1977

"Thyroid Uptake of I-131: Further Comparison of Capsules and Liquid Preparations." 1975

"Functional Evaluation of a Hepatic Scintigraphic Defect Using Ultrasound and a Fatty Meal: Case Report." 1977

"Scintigraphic Review of the Hip." Presented at the 27th Annual Meeting of the RSNA, 1979.

(2) Expect numerous other nuclear medicine studies.

(3) Radiation therapy patients were treated on protocols.

G. Naval Hospital Oakland, Ca. Present structure opened in 1968. Nuclear medicine was opened in 1970.

Efforts to locate human radiation experiment records:

(1) Searched through Defense Technical Information Centers computerized records and index card records.

(2) Queried National Archives.

(3) Queried Federal Record Centers.

(4) Queried individuals stationed at NH Oakland.

(5) Requested curriculum vitae from primary researchers to assist in literature search.

Individuals Consulted:

Diane Nixon, National Archives, Laguna (714) 643-4241
Sharon Roadway, Federal Records Center, Laguna (714) 643-4241
Waverly Lowell, National Archives, San Bruno (415) 876-9009

Richard Boyden, Federal records Center, San Bruno (415) 876-9009
William Seibert, National Personnel Records Center, St. Louis, (314) 538-4216
LCDR Mary Jo Ramsey, MSC, USN, NH Oakland (510) 633-5771
Dennis Honeychurch, Radiopharmacist, NH Oakland
LCDR Dean Taylor, MSC, USN, NH San Diego

Records found:

- (1) Clinical investigation records are at NH Oakland for years 1976 to present.
- (2) No records found in the regional archives.
- (3) Federal Personnel Records Center, St. Louis holds 1,412 cu ft from 1968-1978 and 385 cu ft from 1974-1990.
- (4) Copies of studies should be in journals.
- (5) Radioisotope License File on record with the Navy Environmental Health Center.

List of Experiments or Possible Experiments:

- (1) Dr. Norman Takaki (1971-1975) may have published some carbon and calcium studies.
- (2) Dr. Tomas Dresser (1972-1993) was Chief of Nuclear Medicine and may have published some work.
- (3) Dr. James Winebright (1971-1982) was Chief of Nuclear Medicine and published the following:

"Localization of Ga-67 Citrate in Plasma Cell Granuloma of the Lung"

"Supernumerary Toe Arising from the Medial Cuneiform"

"Splenic Artifact Caused by Barium in the Colon"

"Functional Asplenia after Thorotrast Administration"

"Gallium-67 Uptake in a Benign Thymic Cyst"

"Soft-tissue Uptake of Tc-99m MCP in Secondary Scrotal Lymphedema"

H. Naval Hospital Portsmouth. Radiation Oncology's records extend back to the early 1950's where therapeutic X-Ray units were in use. First brachytherapy case was a Sr-90 treatment in 1956. Nuclear Medicine studies started in 1961 or 1962.

Efforts to locate human radiation experiment records:

- (1) Searched through Defense Technical Information Center's computerized records and index card records.
- (2) Queried National Archives.
- (3) Queried Federal Record Centers.
- (4) Queried Command Historian, and prior Chiefs of Radiology.

Individuals consulted:

Bob Plowman, National Archives, Philadelphia (215) 597-3000
Joseph Sheehan, Federal Records Center (215) 5694/9753
Dan Bennett, Federal Records Center, Philadelphia (215) 951-5698
Rich Boyland, National Archives, Suitland, MD (301) 763-1083
Velicia Chance Federal Records Center, Suitland, MD (301) 763-7430
Millie Sturate, Federal Records Center, Suitland, MD (202) 433-4217
Tom Steinichen, Federal Records Center, Atlanta, GA (404) 763-7474
William Seibert, National Personnel Records Center, St. Louis, (314) 538-4216
CDR Paul Blake, MSC, USN, NH Portsmouth
CAPT Pishnotti, MC, USN (Ret), NH Portsmouth
CAPT Theodore Conoway, MSC, USN (Ret) Historian
CAPT Francis Holmes, MC, USN (Ret) Chief, Radiology 1959-1969

Records found:

- (1) No records located in the regional records centers or national archives.
- (2) Federal Personnel Records Center, St. Louis holds 1,937 cu ft for years 1969-1973 and 9,809 cu ft for 1974-1990 (Volume of records for years prior to 1969 was not requested on original request based on estimate of start of nuclear medicine clinic. Volume of records starting in 1944 has been requested).
- (3) CAPT Conoway stated that in the late 1950's BUMED directed all the east coast naval hospitals to ship their retired hospital records to the GSA Record Center, Garden City, Long Island, NY. CAPT Conoway shipped NH Portsmouth's records for 1944-1951 to this center. These records were subsequently destroyed by GSA.
- (4) Radiation Safety Committee minutes 1976 to present.

(5) Radioisotope License file, Navy Environmental Health Center.

List of Experiments or Possible Experiments:

(1) Study: "Postpartum Chest X-Ray Studies of 1,000 Patients to Determine Incidence of Pneumopericardium and Pneumomediastinum." 1969-74

(2) Study: "Closed Internal Fixation of Fractures Using Image Intensifier Control." 1974

(3) Study: "Evaluation of Post-Due Obstetric Patients."

I. Naval Hospital Great Lakes:

Efforts to locate human radiation experiment records:

(1) Searched through Defense Technical Information Centers computerized records and index card records.

(2) Queried National Archives.

(3) Queried Federal Record Centers.

Individuals consulted:

Peter Bunce, National Archives, Chicago (312) 581-7816
Don Jackanice, National Archives, Chicago
Anthony Beard, Federal Records Center, Chicago
William Seibert, National Personnel Records Center, St. Louis, (314) 538-4216
LCDR Ray Fong, MSC, USN, NH Gt. Lakes
CAPT C. De Krey, MSC, USN, Commanding Officer, NH Great Lakes
LT Tom Mohaupt, MSC, USN, inactive, RHO 1985-1989
CAPT David George, MSC, USN, RHO 1976-1981

Records found:

(1) Federal Records Center, Chicago, 100-150 cu ft of boxes labeled "flu shots" 1953-1972.

(2) Federal Personnel Records Center, St. Louis holds 8,586 cu ft for years 1944-1973 and 2,903 cu ft for 1974-89. In addition holds 7 cu ft labeled "Radioisotope Lab Treatment Records for years 1960-1963."

(3) File cabinet in Chief of Radiology's office.

(4) Radioisotope License File on record with the Navy Environmental Health Center.

List of Experiments or Possible Experiments:

(1) Naval Hospital Great Lakes treated some radiation therapy patients on Eastern Cooperative Oncology Group protocols. Some of the patients were Veterans Administration Patients from the North Chicago Veterans Hospital (a psychiatric and alcoholic treatment facility).

(2) Study: "Clinical Protocols, Rationales and Procedures for using Two Diagnostic Drugs, HIDA and DMSA." 1981

(3) Study: "Phase III Combination Chemotherapy With or Without Consolidation Radiation Therapy for Localized Small Cell Carcinoma for the Lung."

(4) Study: "Combination Chemotherapy and Radiotherapy for Advanced Hodgkin's Disease."

(5) Study: "Comparative Evaluation of Three Intensive Induction Chemotherapy Regimens and Controlled Evaluation of Adjuvant Radiotherapy Consolidation for Unfavorable (Diffuse) Histologic Subtypes of Non Hodgkin's Lymphoma."

J. Naval Hospital Philadelphia:

Efforts to locate human radiation experiment records:

(1) Searched through Defense Technical Information Centers computerized records and index card records.

(2) Queried National Archives.

(3) Queried Federal Record Centers.

(4) Solicited curriculum vitae from individuals previously assigned there.

(5) Reviewed Nuclear Regulatory License.

Individuals consulted:

Bob Plowman, National Archives, Philadelphia (215) 597-3000

Joseph Sheehan, Federal Records Center (215) 5694/9753

Dan Bennett, Federal Records Center, Philadelphia (215) 951-5698

Rich Boyland, National Archives, Suitland, MD (301) 763-1083

Velicia Chance Federal Records Center, Suitland, MD (301) 763-7430

Millie Sturate, Federal Records Center, Suitland, MD (202) 433-4217

William Seibert, National Personnel Records Center, St.
Louis, (314) 538-4216
LCDR Paul Tveten, MSC, USN (Ret) (804)444-7575 ext 413

Records found:

- (1) No records found at Regional Archives or Records Centers.
- (2) Federal Personnel Records Center, St. Louis has not reported their holdings.
- (3) Nuclear Regulatory License.

List of Experiments or Possible Experiments:

- (1) Nuclear Regulatory License authorized use of Xenon for a liver study.

K. Naval Medical Research unit, Taipei:

Efforts to locate human radiation experiment records:

- a. Searched through Defense Technical Information Centers computerized records and index card records.
- b. Queried National Archives.
- c. Queried Federal Record Centers.
- d. Solicited curriculum vitae from individuals previously assigned there.

Individuals consulted:

CDR Bill Beckner, MSC, USN (Ret), (301) 657-2652
CDR Robert Devine, MSC, USN (Ret), (505)665-2102
LCDR Paul Tveten, MSC, USN (Ret) (804)444-7575 ext 413
Philip Lothyea, National Archives, Seattle(206) 5266507
Kent Carter,, National Archives, Fort Worth, (817) 3345525
John Smith, Federal Records Center, Fort Worth, (817) 334-5525
Diane Nixon, National Archives, Laguna (714) 643-4241
Sharon Roadway, Federal Records Center, Laguna(714) 643-4241
Waverly Lowell, National Archives, San Bruno (415) 8769009
Richard Boyden, Federal Records Center, San Bruno (415) 876-9009
William Seibert, National Personnel Records Center, St.
Louis, (314) 538-4216

Records found:

- (1) No records in the Federal Records centers or Archives.

(2) Curriculum vitae of some staff members listing publications.

(3) Radioisotope License File on record with the Navy Environmental Health Center.

(4) Federal Personnel Records Center, St Louis holds 205 cu ft of medical records for years 1962-1973 and 65 cu ft for 1974-1979.

List of Experiments or Possible Experiments:

(1) Unit had a whole body counter and performed basic physiology and metabolic studies.

(2) The curriculum vitae of some of the above officers indicate the following studies were performed:

"Chromium-51 Studies in Wilson's Disease."

"Copper Absorption in Wilson's Disease."

"Muscle Copper, Zinc and Manganese levels in Wilson's Disease: Studies with the Use of Neutron Activation Analysis."

"Abnormalities of the Physiology of Copper in Wilson's Disease: The Whole-Body Turnover of Copper."

"Decreased Calcium Absorption (CaAb) on Cholestyramine Therapy."

"Hypersplenism in Wilson's disease."

"Turnover Studies of Copper and Homozygotes and Heterozygous for Wilson's Disease and Controls: Isotope Tracer Studies Using Copper-67 and Copper-64."

"Clinical Studies of Capillaritis Philippines."

"Cesium-137 Turnover Rates in Human Subjects of Different Ages."

"Body Composition and Starvation."

"Isotope Studies in Intestinal Capillaritis."

"Iodine-131 Studies in Schistosomiasis."

L. Naval Medical Research Unit Great Lakes:

Efforts to locate human radiation experiment records:

(1) Searched through Defense Technical Information Centers computerized records and index card records.

(2) Queried National Archives.

(3) Queried Federal Record Centers.

Individuals consulted:

Peter Bunce, National Archives, Chicago (312) 581-7816

Don Jackanice, National Archives, Chicago

Anthony Beard, Federal Records Center, Chicago

LCDR Ray Fong, MSC, USN, NH Gt. Lakes

CAPT C. De Krey, MSC, USN, Commanding Officer, NH Great Lakes

LCDR Paul Knectcus, MSC, USN, R & D command, (301) 295-0885

Records found:

(1) Federal Personnel Center, St. Louis holds 17 cu ft of records for years 1946 to 1952.

(2) Radioisotope License File on record with the Navy Environmental Health Center.

List of Experiments or Possible Experiments:

(1) A telephone caller to the Medical Inspector General office stated he participated in a tritium study while stationed at Great Lakes.

(2) Nuclear Regulatory License did not authorize human use studies.

M. Naval Dental Research Institute, Great Lakes:

Efforts to locate human radiation experiment records:

(1) Searched through Defense Technical Information Centers computerized records and index card records.

(2) Queried National Archives.

(3) Queried Federal Record Centers.

Individuals consulted:

Peter Bunce, National Archives, Chicago (312) 581-7816

Don Jackanice, National Archives, Chicago

Anthony Beard, Federal records Center, Chicago

William Seibert, National Personnel Records Center, St. Louis, (314) 538-4216

LCDR Ray Fong, MSC, USN, IVH Gt. Lakes
CAPT C. De Krey, MSC, USN, Commanding Officer, NH Gt. Lakes
LCDR Paul Knechtus, MSC, USN, R & D command, (301) 2950885

Records found:

- (1) None in the Federal Archives and Records Centers.
- (2) Radioisotope License file on record with the Navy Environmental Health Center.
- (3) Reports are maintained at the Institute.

List of Experiments or Possible Experiments:

- (1) Activity states none were performed.
- (2) License does not authorize human use testing.

N. Naval Aerospace Medical Research Laboratory, Pensacola.
Radioisotope License indicates human use was not authorized.

Efforts to locate human radiation experiment records:

- (1) Searched through Defense Technical Information Centers computerized records and index card records.
- (2) Queried National Archives.
- (3) Queried Federal Record Centers.

Individuals consulted:

Gayle Peters, National Archives, East Pt GA (404) 763-7477
Tom Steinichen, Federal Records Center, East Pt GA (404)
763-7474
William Seibert, National Personnel Records Center, St.
Louis, (314) 538-4216

Records found:

- (1) Atlanta Federal Records Center, 475 cu ft of records.
- (2) Radioisotope License File on record with the Navy Environmental Health Center.
- (3) Federal Personnel Records Center, St. Louis holds 43 cu ft from Naval Aerospace Medical Institute for year 1964, but no records for NAMRL.

List of Experiments or Possible Experiments:

(1) One report found in DTIC files which may apply:
"Measurements of Gamma Radiation Doses from Luminous Paint
on Instrument Dials in Airplanes." DTIC ATI 72 685, Feb
1950.

Verified the dose to pilots from the radium dials in
the plane is less than the tolerance dose.

O. Submarine Medical Research Laboratory, Groton:

Efforts to locate human radiation experiment records:

- (1) Searched through Defense Technical Information Centers
computerized record and index card records.
- (2) Queried National Archives.
- (3) Queried Federal Record Centers.

Individuals consulted:

CDR Steve Warlick, MC, USN, COMSUBLANT Medical (804) 444-
6885
William Seibert, National Personnel Records Center, St.
Louis, (314) 538-4216

Records found:

- (1) No records located in the Archives or Federal Record
centers.
- (2) CDR Warlick had copies of supporting information for
the review of radium treatments for submariners.
- (3) Radioisotope License File on record with the Navy
Environmental Health Center.
- (4) Federal Personnel Records Center, St. Louis holds 3 cu
ft of records labeled "Administrative Progress Records,
1942-1952." One cu ft of logs were destroyed in 1978.

List of Experiments or Possible Experiments:

- (1) "Aerotitis Media in Submariners." 1946
- (2) "Radium Therapy in Aerotitis Media."
- (3) "Development of Bony Necrosis in Saturation Divers."

P. Naval Radiological Defense Laboratory. The laboratory
provided support for nuclear weapons testing from approximately
1946 to its closing in 1969.

Efforts to locate human radiation experiment records:

- (1) Queried National Archives.
- (2) Queried Federal Records Center.
- (3) Searched DTIC files and card index.

Individuals Consulted:

Richard Boyden, Federal Records Center, San Bruno (415) 876-9084
Dr. Eugene Cronkite, Brookhaven National Laboratory,
Dr. Vic Bond, Brookhaven National Laboratory
Dr. Armand Yander, University of Missouri
Don Newland, National Archives, San Bruno, (415) 876-9009
Kathleen O'Connoer, National Archives, San Bruno (415) 876-9009
Richard Boyden, Federal Records Center, San Bruno (415) 876-9006
Daniel M. Jones, CAPT, MC, USN (Ret) (216) 522-5955
William Seibert, National Personnel Records Center, St. Louis, (314) 538-4216

Records found:

- (1) Federal Records Center, San Bruno, 73 cu ft of records; 20 cu ft Secret, 5 cu ft Confidential and 48 cu ft unclassified.
- (2) National Archives, San Bruno, 145 boxes, 1/2 classified, NRDL 1946-1959.
- (3) Federal Personnel Records Center, St. Louis holds 3 cu ft of records, 1954-1956.

List of Experiments or possible experiments:

- (1) Anecdotal information: Dr. Bond stated during 1946-1954 only animal studies were done and that only two studies were classified and have since been declassified. Dr. Yander remembered a study 1955-1958 where a summer medical school investigator (Dr.. Daniel Jones) solicited volunteers to do a tracer study. He stated several people ingested or drank a tracer and Dr. Jones collected urine and feces for about two week for analysis. Dr. Jones did not remember the experiment.
- (2) Veteran requesting exposure history, submitted copy of a letter describing a test called HYDRA IIA. Apparently HYDRA IIA studied the fallout pattern from a 10,000 pound high explosive charge containing tracer amounts of radioactivity.

(3) Study: "Observations on the Thermal Fragility of Erythrocytes." DTIC ATI 93522, 1950

Compared the survivability of animal and human blood cells as a function of temperature, mechanical stress and radiation exposure.

Q. Naval Research and Development Command:

Efforts to locate human radiation experiment records:

(1) Searched DTIC files and card index.

Individuals Consulted: N/A

Records found:

(1) One report in DTIC files.

List of Experiments or possible experiments:

(1) Study: "Investigation of Hematologic and Pathologic Response to Decompression." AD A064240 May 10 1978. ONR Contract N0001 4-71-C-0273 to Virginia Mason Research Center Seattle, Washington.

Among other things studied platelet survival in human test subjects using different decompression schedules.

Office of Naval Research (ONR):

1. The Office of Naval Research (ONR) has been identified as one of two naval organizations that have sponsored human radiation experiments.

2. Existing records of ONR sponsorship of radiation experiments on humans can be found in the open scientific literature or, in some cases, at the facilities where the sponsored research was conducted.

3. All efforts undertaken to determine if records exist of human radiation experiments are provided below:

A. A comprehensive search of reports filed with Defense Technical Information Center (DTIC) was made, and all abstracts which related to ONR sponsored research involving radiation were reviewed.

B. A systematic review of ONR's contract card file was completed. The card file lists the titles of research grants, the institutions who received the funding, and the year of the grants. More complete records are not available, as ONR records dating back more than twenty-five years were destroyed. Universities and laboratories who received grants from ONR have been contacted and are conducting their own in-house investigations.

4. Listed below are the results of ONR's search for records:

A. The DTIC search identified one project undertaken by Cryophara Corporation that was sponsored by the Navy Medical Research and Development Command (NMR&D) under a contract administered by ONR:

Cryopharm Corporation

POC: CDR Peter Kent, MC, USN (301) 295-0880
Project Title: "Freeze-dried Human Red Blood Cells."
(1991)

B. Massachusetts Institute of Technology (MIT) identified three papers, published in the open scientific literature in 1948, 1951, and 1955, which involved clinical investigations using radioisotopes that were jointly sponsored by the Office of Naval Research and the Atomic Energy Commission. These are:

"Circulating Red Cell Volume and Body Hematocrit in Normal Pregnancy and the Puerperium by Direct Measurement Using Radioactive Red Cells," American Journal of Obstetrics and Gynecology, Volume 61, No 6, pages 1207-1217, June 1951.

"Persistence and Utilization of Maternal Iron for Blood Formation During Infancy," Journal of Clinical Investigation, Volume 34, No 9, pages 1391-1402, September 1955.

"Effect of Total Thyroidectomy on Function of Metastatic Thyroid Cancer," Journal of Clinical Endocrinology, Volume 8, No. 10, pages 826-841, October 1948.

C. A search of ONR contract records by contract title found the following research topics which could potentially involve the use of humans. The Universities have been contacted and are searching their records for information that will confirm whether or not human subjects were used.

(1) **Ohio State University Research Foundation**
POC: Dr. Gahbauer (614) 293-8415
Sue Barker (614) 292-5958

Sue Barker (614) 292-5958

Project title: "The Establishment of Physical and Medical Principals in the Use of Artificial Radioactive Cobalt for Treatment of Cancer." (1948-1949)

(2) **Massachusetts Institute of Technology**
POC: Dr. David Litster (617) 253-6801

Project title: "Research on a New Method for Radiation Detection." (1951-1955)

(3) **University of Pennsylvania**
POC: Public Affairs (Lori) (215) 662-2560

Project title: "Research on the Effects of Ultrahigh Electromagnetic Radiation (High Power Radiation) on Biological Material and the Possible Health of." (1955-1957)

(4) **Tufts College Medical School**
POC: Frank Stout (617) 956-5363

Project title: "Effects of Radiation Associated with Growth." (1948-1950)

(5) **New York Post Graduate Medical School and Hospital**
POC: David Sachs (21) 685-2058

Project title: "Skin Changes Produced by Low Voltage Roentgen Ray Irradiation." (1949)

(6) **Memorial Hospital for the Treatment of Cancer and Allied Diseases**
POC: Public Affairs (Sheila) (212) 693-3573

Project title: "Studies of Distribution of Isotopes in Therapy with Particular Reference to Radioiodine." (1948)

(7) **University of Maryland**
POC: Public Affairs (410) 706-3100
Project title: "RDX Toxicity." (1974-1975)

D. The Office of Naval Research has positively identified four research contracts which positively involved human radiation research. Additionally, sixteen (16) additional university based research contracts, which could potentially involve humans in radiation research, have been identified. Each of the universities were contacted and asked to search their records to identify the research and to notify the Navy if humans were involved in the research, and if so, to preserve the records.

All experiments will be individually listed and identified in part II of this report.

E. Name and location of organizations where records might be located:

(1) Ohio State University Research Foundation

(a) Efforts to locate human radiation experiment records: Unknown.

(b) Individuals consulted: Dr. Gahbauer (614) 293-8415.

(c) Human radiation experiment records found: Unknown.

(d) List of Possible Experiments:

"The Establishment of Physical and Medical Principals in the Use of Artificial Radioactive Cobalt for Treatment of Cancer." (1948-1949).

(2) New York Post Graduate Medical School and Hospital

(a) Efforts to locate human radiation experiment records: Unknown.

(b) Individuals consulted: N/A

(c) Human radiation experiment records exist: Unknown.

(d) List of Possible Experiments:

"Research on a New Method for Radiation Detection." (1951, 1953-1955).

(3) McDonnell Center for Studies of Higher Brain Function, Washington University, St. Louis

(a) Efforts to locate human radiation experiment records: Defense Technical Information Center (DTIC) computer search of key words. Manual reviews of titles and abstracts was conducted of the key word search to identify possible human radiation experiment records.

(b) Files/file systems searched: DTIC Title Index

(c) Individuals consulted: N/A

(d) Human radiation experiment records found: None.

(e) List of Possible Experiments:

"Studies of the Processing of Single Words
Using Positron Tomographic Measure."

PART II IDENTIFICATION OF POSSIBLE HUMAN RADIATION
EXPERIMENTATION

1. On the following pages each possible human radiation experiment is listed, one experiment per page. The name of the experiment, its location, the date of the experiment, the primary researchers, the sponsor of the experiment, the human subjects (if any) and if informed consent was given, the purpose of the experiment, category, where records of the experiment are kept and the classification of the experiment.

**PART II IDENTIFICATION OF POSSIBLE HUMAN RADIATION
EXPERIMENTATION**

Experiment #1: **Freeze-dried Human Red Blood Cells**

Location: Cryopharm Corporation, Pasadena, CA. (1991)

Date: 1991

**Primary
Researchers:** Pending determination.

Sponsors: Navy Medical Research and Development Center
 (NMR&D)

**Human
Subjects:** Four volunteers. Informed consent
 determination pending.

Purpose: To evaluate the safety and circulation time
of freeze dried red blood cells.

Category: The blood cells were labeled with trace
 amounts of radioactivity in order to make
 direct measurements.

Records: The original contract is at the Office of
 Naval Research. Any other records on the
 experiment can be found at NMR&D. POC is CDR
 Peter Kent, MC, USN (301) 295-0880.

Classification: None

Experiment #2: **Circulating Red Cell Volume and Body Hematocrit in Normal Pregnancy and the Puerperium by Direct Measurement, Using Radioactive Red Cells**

Location: Harvard Medical School
The Boston Lying-in Hospital
Massachusetts Institute of Technology

Date: 1951

Primary Researchers: William L. Caton
Charles C. Roby
Duncan E. Reid
Randolph Caswell
C.J. Maletskos
Rex G. Fluharty
John G. Gibson

Sponsors: Charles H. Hood Foundation
Office of Naval Research
Atomic Energy Commission
National Institute of Health

Human Subjects: Twelve pregnant women, patients of the Boston Lying-in Hospital, cooperated in the study. No other information is available regarding these women. Informed consent determination pending.

Purpose: To determine, by direct measurement, the volume of the circulating red cell mass during normal pregnancy and the Puerperium.

Category: Radioactive iron was used to "tag" red cells, enabling the researchers to make direct measurements.

Records: The only known record of this experiment was found in the open scientific literature:

 "Circulating Red Cell Volume and Body Hematocrit in Normal Pregnancy and the Puerperium by Direct Measurement, Using Radiactive Red Cells, "American Journal of Obstetrics and Gynecology, Volume 61, No 6, pages 1207-1217, June 1951.

Classification: None

Experiment #3: Persistence and Utilization of Maternal Iron for Blood Formation During Infancy

Location: Harvard Medical School
The Radioactivity Center
The Boston Lying-in Hospital
Massachusetts Institute of Technology
Children's Hospital
Peter Bent Brigham Hospital

Date: 1955

Primary Researchers: Clement A. Smith
Ruth B. Cherry
John G. Gibson
Charles C. Roby
C.J. Maletskos
William L. Caton
Duncan Reid

Sponsors: Committee on Growth
Office of Naval Research
Atomic Energy Commission
American Cancer Society
Harvard Medical School
National Institute of Health
Massachusetts Institute of Technology

Human Subjects: Eleven pregnant women and sixteen infants from the Boston Lying-in Hospital. No other information is available regarding these women. Informed consent determination pending.

Purpose: To measure the persistence and utilization of transplacental iron during infancy.

Category: Radioactive iron was used to "tag" red cells, enabling the researchers to make direct measurements.

Records: The only known record of this experiment was found in the open scientific literature:

"Persistence and Utilization of Maternal Iron for Blood Formation During Infancy," **Journal of Clinical Investigation**, Volume 34, No 9, pages 1391-1402, September 1955.

Classification: None

Experiment #4: **Effect of Total Thyroidectomy on Function of Metastatic Thyroid Cancer**

Location: Thyroid Clinic of Massachusetts Hospital
 Memorial Hospital
 Sloan-Kettering Institute
 Massachusetts Institute of Technology

Date: 1948

**Primary
 Researchers:** Rulon W. Rawson
 L.D. Marinelli
 Bengt N. Skanse
 Jack Trunnell
 Rex G. Fluharty

Sponsors: American Cancer Society
 Office of Naval Research

**Human
 Subjects:** 21 patients received the treatment outlined
 in this experiment. Patient's initials were
 listed, as well as an identification number.
 Informed consent determination pending.

Purpose: To determine the effect of total
 thyroidectomy on the function of metastatic
 thyroid cancer.

Category: Trace amounts of radioactive iodine were used
 to diagnose thyroid cancer.

Records: The only known record of this experiment was
 found in the open scientific literature:

 "Effect of Total Thyroidectomy on
 Function of Metastatic Thyroid Cancer,"
 Journal of Clinical Endocrinology,
 Volume 8, No. 10, pages 826-841, October
 1948.

Classification: None

Experiment #5: **Principals in the Use of Artificial
Radioactive Cobalt for Treatment of Cancer.**

Location: Ohio State University Research Foundation

Date: 1948-1949

**Primary
Researchers:** Pending determination.

Sponsors: Office of Naval Research

**Human
Subjects:** Pending determination.

Purpose: Pending determination.

Category: Pending determination.

Records: Pending determination.

Classification: Pending determination. None Presumed.

Experiment #6: **Research on a New Method for Radiation Detection.**

Location: Massachusetts Institute of Technology

Date: 1951-1955

**Primary
Researchers:** Pending determination.

Sponsors: Office of Naval Research

**Human
Subjects:** Pending determination.

Purpose: Pending determination.

Category: Pending determination.

Records: Pending determination.

Classification: Pending determination. None presumed.

Experiment #7: **Research on the Effects of Ultrahigh
Electromagnetic Radiation (high power
radiation) on Biological Material and the
Possible Health Of**

Location: University of Pennsylvania

Date: 1955-1957

**Primary
Researchers:** Pending determination.

Sponsors: Office of Naval Research

**Human
Subjects:** Pending determination.

Purpose: Pending determination.

Category: Pending determination.

Records: Pending determination

Classification: Pending determination. None presumed.

Experiment #8: **Effects of Radiation Associated With Growth.**

Location: Tufts College Medical School

Date: 1948-1950

**Primary
Researchers:** Pending determination.

Sponsors: Office of Naval Research

**Human
Subjects:** Pending determination.

Purpose: Pending determination.

Category: Pending determination

Records: Pending determination.

Classification: Pending determination. None presumed.

Experiment #9: **Skin Changes Produced by Low Voltage Roentgen Ray Irradiation.**

Location: New York Post Graduate School and Hospital

Date: 1949

**Primary
Researchers:** Pending determination.

Sponsors: Office of Naval Research

**Human
Subjects:** Pending determination

Purpose: Pending determination.

Category: Pending determination.

Records: Pending determination.

Classification: Pending determination. None presumed.

Experiment #10: **Studies of Distribution of Isotopes in
Therapy With Particular Reference to
Radioiodine**

Location: Memorial Hospital for the Treatment of Cancer
and Allied Diseases

Date: 1948

**Primary
Researchers:** Pending determination.

Sponsors: Office of Naval Research

**Human
Subjects:** Pending determination.

Purpose: Pending determination.

Category: Pending determination.

Records: Pending determination.

Classification: Pending determination. None presumed.

Experiment #11: RDX Toxicity

Location: University of Maryland

Date: 1974-1975

**Primary
Researchers:** Pending determination.

Sponsors: Office of Naval Research

**Human
Subjects:** Pending determination.

Purpose: Pending determination.

Category: Pending determination.

Records: Pending determination.

Classification: Pending determination. None presumed.

Experiment #12: INTELCON RAD TECH, INTELCON Industries, Inc.
Gulf Energy and Environmental Systems

Location: University of Maryland

Date: 1973-1975

**Primary
Researchers:** Pending determination.

Sponsors: Office of Naval Research

**Human
Subjects:** Pending determination.

Purpose: Pending determination.

Category: Pending determination

Records: Pending determination.

Classification: Pending determination. None presumed.